

Commissioner for Patents  
Serial No. : 10/714,401

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (cancelled)

2. (currently amended)        The method as claimed in claim 16, wherein said sending a first request from the client computer to the shared storage medium comprises sending a null-valued version number when said selected data element is not stored on said client computer, and wherein said sending of one of a first reply and a second reply comprises sending to said client computer a copy of the selected data element and a respective version number for storage on said client computer.

3. (currently amended)        The method as claimed in claim 16, wherein said first request contains an address range defining said selected data element on said shared medium.

4. (original)    The method as claimed in claim 3, wherein said address range comprises non-contiguous storage blocks.

5. (previously presented)      The method as claimed in claim 16, wherein said client computer communicates with said shared medium through a network block device driver.

6. (previously presented)      The method as claimed in claim 16, wherein said shared medium is a server memory storage space.

7. (canceled)

8. (currently amended)        The method as claimed in claim 18, wherein the first request comprises information identifying multiple selected data elements associated with multiple separate data structures each containing one of multiple respective version numbers, and further comprising creating a new single data structure in said master list associated with said selected data elements and removing said multiple separate data structures from said master list after said selected data elements is accessed by said client computer.

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9. (previously presented) The method as claimed in claim 18, further comprising updating the master list with a new version number after the selected data element is modified.

10. (previously presented) The method as claimed in claim 18, wherein said master list comprises a list of data structures which is a double linked binary tree list.

11. to 15. (canceled)

16. (currently amended) A method for executing a common task in a clustered computing environment comprising a plurality of computers interconnected to collaborate on said common task, said plurality of computers including at least a client computer and a shared storage medium storing common data, the method comprising:

maintaining, at the shared storage medium, a main list including information identifying data elements stored in the shared storage medium and a respective version number of each data element;

maintaining, at each client computer, a local list containing, for each one of the data elements previously accessed from the shared storage medium, information identifying a corresponding original data element in the shared storage medium and a respective current version number of the data element stored in the client computer;

when an application executing on a given client computer attempts to ~~access~~modify a selected data element, sending a first request from the client computer to the shared storage medium, the first request including the information identifying the selected data element and the respective current version number;

upon receipt of the first request by the shared storage medium, matching the current version number received from the client computer with the respective version number in the main list;

based on the matching, sending to the client computer one of: a first reply including a confirmation that the current data version of the selected data element is valid when the current version number received from the client computer matches the version number associated with the data element in the main list; and a second

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reply including a new copy of the selected data element and a respective new version number when the version number received from the client computer does not match the version number in the main list; and

upon receipt of the first reply from the shared storage medium, executing the common task at the client computer using the data element stored in the client computer; and

upon receipt of the second reply, modifying the data element stored in the client computer to correspond to the new copy received from the shared storage medium ~~using the received data element~~ prior to executing the common task;

modifying the data element stored in the client computer as part of executing the common task to create a modified data element; and

modifying the selected data element on the shared storage medium based on the modified data element.

17. (currently amended) In a clustered computing environment comprising a plurality of computers connected to access common data stored on a shared storage medium, a method of managing modifications ~~access~~ to the common data by each computer, the method comprising:

providing a respective client for each computer, the client being operative to:

maintain a local list including, for each data element previously accessed from the shared storage medium and stored in a local cache of the client, information identifying a corresponding original data element in the shared storage medium and a respective current version number of the data element stored in a local cache of the client; and

when an application executing on the computer attempts to ~~access~~ modify a selected data element:

send a first request to the shared storage medium, the first request including the information identifying the selected data element and

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the respective current version number associated with the selected data element; and

receive from the shared storage medium one of: a first reply including a confirmation that the current version number of the selected data element is valid; and a second reply including an updated content of the selected data element along with a respective new version number;

modify the data element to create a modified data element; and

modify the selected data element on the shared storage medium based on the modified data element.

18. (currently amended) In a clustered computing environment comprising a plurality of computers connected to access common data stored on a shared storage medium, a method of managing modifications ~~access~~ to the common data by each computer, the method comprising:

maintaining a master list including, for each data element of the common data previously accessed by any one of the computers, respective information identifying the original data element in the shared storage medium and a respective current version number of the data element; and

receiving a first request from a respective client executing on a given computer and attempting to ~~access~~ modify a selected data element, the first request including information identifying the selected data element and a respective version number of the selected data element;

determining whether the version number of the selected data element contained in the first request matches the current version number of the data element;

when the version number contained in the first request matches the current version number, sending a first reply to the client, the first reply including a confirmation that the version number of the selected data element contained in the first request is valid; and

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when the version number contained in the first request does not match the current version number, sending a second reply to the client, the second reply including the selected data element along with the respective current version number;

receiving a modified data element corresponding to the selected data element from the client; and

upon receipt of the modified data element from the client, modifying the version number associated with the selected data element in the master list.

19. (currently amended) The method as claimed in claim 17, wherein the client computer is operative to receive from the shared storage medium a copy of the selected data element and a respective version number when said selected data element is not stored on said client computer, and upon a null-valued version number being sent in the first request.

20. (currently amended) The method as claimed in claim 17, wherein said first request contains an address range defining said selected data element on said shared medium.

21. (previously presented) The method as claimed in claim 20, wherein said address range comprises non-contiguous storage blocks.

22. (previously presented) The method as claimed in claim 17, wherein said client computer communicates with said shared medium through a network block device driver.